Astronomical Formulae For Calculators

XEphem Digital Lunar Orbiter XEphem is a Motif based ephemeris and planetarium program for Unix-like operating systems developed by Elwood C. Meeus, Astronomical Formulae for Calculators (Willmann-Bell, Richmond, VA, 1982). Downey. 109: 181. J. Series. 109. 181C. Bibcode:1995A&AS bc71c31355

The lower the Sun is beneath the horizon, the dimmer the sky (other factors such as atmospheric conditions being equal). When the Sun reaches 18° below the horizon, the illumination emanating from the sky is nearly zero, and evening twilight becomes nighttime. When the Sun approaches re-emergence, reaching 18° below the horizon, nighttime becomes morning twilight. Owing to its distinctive quality, primarily the absence of shadows and the appearance of objects silhouetted... bc71c31355

Twilight Twilight. Twilight time calculator Archived 2011-10-14 at the Wayback Machine Formulae to calculate twilight Twilight is daylight illumination produced by diffuse sky radiation when the Sun is below the horizon as sunlight from the upper atmosphere is scattered in a way that illuminates both the Earth's lower atmosphere and also the Earth's surface. Twilight also may be any period when this illumination occurs, including dawn and dusk. Twilight Calculator Compute twilight times bc71c31355

Meeus studied mathematics at the University of Leuven in Belgium, where he received the Degree of Licentiate in 1953. From then until his retirement in 1993, he was a meteorologist at Brussels Airport. bc71c31355 In some cases, limiting magnitude refers to the upper threshold of detection. In more formal uses, limiting magnitude is specified along with the strength of the signal (e.g., "10th magnitude at 20 sigma"). Sometimes limiting magnitude is qualified by the purpose of the instrument (e.g., "10th magnitude for photometry") This statement recognizes that a photometric detector can detect light far fainter than it can reliably measure. bc71c31355 The limiting magnitude of an instrument is often cited for ideal conditions, but environmental conditions impose further practical limits. These include weather, moonlight, skyglow, and light pollution. DarkSky International... bc71c31355

VB 10 VB 10 is historically notable as it was the least luminous and least massive known star from its discovery in 1944, until 1982 when LHS 2924 was shown to be less luminous. It is part of a binary star system. Although it is relatively close to Earth, at about 19 light years, VB 10 is a dim magnitude 17, making it difficult to image with amateur telescopes as it can get lost in the glare of the primary star. Mathematical formulae for calculating apparent magnitude show that, if VB 10 occupied the place VB 10 or Van Biesbroeck's star is a small and dim red dwarf located in the constellation Aquila. 3 (somewhat variable), making it very difficult to see bc71c31355

Orbit of Mars Elements by F. The planet orbits the Sun in 687 days and travels 9. E Mars has an orbit with a semimajor axis of 1. 663S. Bibcode:1994A&A. 282. 282 (2): 663–683. 55 AU in doing so, making the average orbital speed 24 km/s. (Richmond, VA: Willmann-Bell, 1988) 99. 0934. 673 light minutes), and an eccentricity of 0. Jean Meeus, Astronomical Formulæ for Calculators. 524 astronomical units (228 million km) (12 bc71c31355

The tropical year is one type of astronomical year and particular orbital period. Another type is the sidereal year (or sidereal orbital period), which is the time it takes Earth to complete one full orbit around the Sun as measured with respect to the fixed stars, resulting in a duration of 20 minutes longer than the tropical year, because of the precession... bc71c31355

Longitude It is an angular measurement, usually expressed in degrees and denoted by the Greek letter lambda (λ). contact with Spain and North Africa. Positive longitudes are east of the prime meridian, and negative ones are west. In the 12th century, astronomical tables were prepared for a number of European cities, based on the work of al-Zarqālī Longitude (, AU and UK also) is a geographic coordinate that specifies the east-west position of a point on the surface of the Earth, or another celestial body. The prime meridian defines 0° longitude; by convention the International Reference Meridian for the Earth passes near the Royal Observatory in Greenwich, south-east London on the island of Great Britain. Meridians are imaginary semicircular lines running from pole to pole that connect points with the same longitude bc71c31355

VB 10 is also the primary standard for the M8V spectral class. bc71c31355 The eccentricity is greater than that of any other planet except Mercury, and this causes a large difference between the aphelion and perihelion distances—they are respectively 1.666 and 1.381 AU. bc71c31355 Because of the Earth's rotation, there is a close connection between longitude and time measurement. Scientifically precise local time varies... bc71c31355

Tropical year It is the type of year used by tropical solar calendars. For example, it is the time from vernal equinox to the next vernal A tropical year or solar year (or tropical period) is the time that the Sun takes to return to the same position in the sky – as viewed from the Earth or another celestial body of the Solar System – thus completing a full cycle of

astronomical seasons. celestial body of the Solar System – thus completing a full cycle of astronomical seasons. For example, it is the time from vernal equinox to the next vernal equinox, or from summer solstice to the next summer solstice bc71c31355

Limiting magnitude Limiting Magnitude Calculator Loss of the Night app for estimating limiting magnitude The Astronomical Magnitude Scale Astronomical Visibility (articles In astronomy, limiting magnitude is the faintest apparent magnitude of a celestial body that is detectable or detected by a given instrument bc71c31355

Jean Meeus] Astronomical Formulæ for Calculators (1982), 2nd ed. Enlarged and Jean Meeus (born 12 December 1928) is a Belgian meteorologist and amateur astronomer specializing in celestial mechanics, spherical astronomy, and mathematical astronomy. Tables of Minor Planets (1973) Astronomical Formulae for Calculators (1979) [1st ed bc71c31355

On its own, the term "latitude" normally refers to the geodetic latitude as defined below. Briefly, the geodetic latitude of a point is the angle formed between the vector perpendicular (or normal) to the ellipsoidal surface from the point, and the plane of the equator. bc71c31355

Orbit of Venus The low eccentricity and comparatively small size of its orbit give Venus the least range in distance between perihelion and aphelion of the planets: 1. 282 (2): 663–683. Bibcode:1994A&A. 282. 007. (Richmond, VA: Willmann-Bell, 1988) 99. The planet orbits the Sun once every 225 days and travels 4. Jean Meeus, Astronomical Formulæ for Calculators, by Jean Meeus. 723 au (108,200,000 km; 67,200,000 mi), and an eccentricity of 0. 663S. 46 million km. 54 au (679,000,000 km; 422,000,000 mi) in doing so, giving an average orbital speed of 35 km/s (78,000 mph). Elements Venus has an orbit with a semi-major axis of 0 bc71c31355

Latitude Latitude and longitude are used together as a coordinate pair to specify a location on the surface of the Earth. Lines of constant latitude, or parallels, run east-west as circles parallel to the equator. The expressions for the geocentric and In geography, latitude is a geographic coordinate that specifies the north-south position of a point on the surface of the Earth or another celestial body. Latitude is given as an angle that ranges from −90° at the south pole to 90° at the north pole, with 0° at the Equator. } The formulae in the previous sections give the auxiliary latitude in terms of the geodetic latitude. (\phi)\, bc71c31355